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Job No.: CTCE/BBMP/W.No.12/KRIDL/SDBC/Shape_T/2014-15 : 10.03.2015

DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements to Main & Cross Road at Kodandaramaswamy temple back side area & Kammagondanahalli in Ward No.12, BBMP, Bangalore.
Reference	: EE/DD/WO/46/2014-15 Dated: 25.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 10.03.2015

Result : Flakiness Index = **11.06%**

Elongation Index = **13.20%**

Result : Combined Flakiness & Elongation index **24.26%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

Note:

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ಸಹಾಯಕ ಕಾರ್ಯಪಾಲಕ ಅಭಿಯಂತರರು
ಶೆಟ್ಟಿಹಳ್ಳಿ ಉಪವಿಭಾಗ, ದಾಸರಹಳ್ಳಿ ವಲಯ
ಬೃಹತ್ ಬೆಂಗಳೂರು ಮಹಾನಗರ ಪಾಲಿಕೆ
ಜಿಕೆಎಂ ರಸ್ತೆ, ರವೀಂದ್ರನಗರ, ಬೆಂಗಳೂರು

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Type of Mix	: Semi Dense Bituminous Concrete
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Result : Flakiness Index = **12.35%**

Elongation Index = **13.10%**

Result : Combined Flakiness & Elongation index **25.45%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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DETERMINATION OF FLAKINESS INDEX & ELONGATION INDEX OF COARSE AGGREGATES

Customer	: **Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	: **Technical Manager (West),** KRIDL, Bangalore.
Name of Work	: Improvements to Main & Cross Road at Kodandaramaswamy temple back side area & Kammagondanahalli in Ward No.12, BBMP, Bangalore.
Reference	: EE/DD/WO/46/2014-15 Dated: 25.06.2014
Technical Reference	: IS 2386(Part 1) 1963 (RA 2007)
Type of Mix	: Semi Dense Bituminous Concrete
Date of Testing	: 10.03.2015

Result : Flakiness Index = **11.85%**

Elongation Index = **13.85%**

Result : Combined Flakiness & Elongation index **25.70%**

Comments:

Maximum allowable Flakiness & Elongation Index for Semi Dense Bituminous Concrete is 30%

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Job No.: CTCE/BBMP/W.No.12/KRIDL/SDBC/Stripping/2014-15 12.03.2015

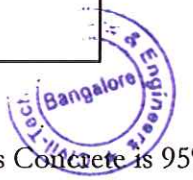
Stripping Value of Road Aggregates (Static Immersion Test)

IS: 6241

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the work	Improvements to Main & Cross Road at Kodandaramaswamy temple back side area & Kammagondanahalli in Ward No.12, BBMP, Bangalore.
Reference	EE/DD/WO/46/2014-15 Dated: 25.06.2014
Type of Mix	Semi Dense Bituminous Concrete
Date of Testing	12.03.2015

Type of binder : 80/100
Percentage of binder used : 5.0% by wt.
Total weight of aggregate : 200 g
Total weight of binder : 10.0 g
Temperature of water-bath : 40° C

Observation Number	Stripping, Percentage	Average, Percentage	Average Retained Coating, %
1	3.1	3.20	96.80
2	3.2		
3	3.3		



Comments:

→ Minimum allowable Aggregate retained coating for Semi Dense Bituminous Concrete is 95%

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Job No.: CTCE/BBMP/W.No.12/KRIDL/SDBC/Sp_Wa/2014-15 12.03.2015

Specific Gravity And Water Absorption Test

IS: 2386 Part III

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager,** KRIDL, Bangalore.
Name of the Work	Providing asphalting to Mourya school road and surroundings in Ward No.102, BBMP, Bangalore.
Reference	EE/MLP/PR/315/2013-14 Dated: 26.02.2014
Type of Mix	Semi Dense Bituminous Concrete
Source / Location	Hotmix Plant, Bangalore
Date of Testing	12.03.2015

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2001	2002	2003	
2	Weight of basket suspended in water	W_2 g	755	755	755	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1246	1247	1248	
4	Weight of saturated surface dry aggregate in air	W_3 g	2021	2022	2023	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	775	775	775	
6	Weight of oven dried aggregate	W_4 g	2004	2005	2006	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.586	2.587	2.588	2.587
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.644	2.645	2.646	2.645
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.85%	0.85%	0.85%	0.85%

Comments:

→ Maximum allowable Aggregate Water absorption value for Semi Dense Bituminous Concrete is 2.0%

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Job No.: CTCE/BBMP/W.No.12/KRIDL/SDBC/Bit/2014-15 12.03.2015

BITUMEN CONTENT DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

AS per IRC:SP:-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Main & Cross Road at Kodandaramaswamy temple back side area & Kammagondanahalli in Ward No.12, BBMP, Bangalore.
REFERENCE	EE/DD/WO/46/2014-15 Dated: 25.06.2014
SAMPLE I/D	Roads at Kammagondanahalli Ward No.12.
DATE OF TESTING	12.03.2015

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BITUMEN CONTENT DETERMINATION

Description	Trail 1	Trail 2
1. Weight of Mixture before Test, g	500	500
2. Weight of Mixture after Test, g	475	474
3. Weight of Asphalt and Mineral matter Extracted, g	-	-
4. Weight of Mineral Matter, g.	-	-
5. Weight of Ash, g		
6. Weight of Bitumen Extracted, g. (corrected)	25	26.00
7. Bitumen content in %	5.00	5.20
8. Average	**5.10**	

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Job No.: CTCE/BBMP/W.No.12/KRIDL/SDBC/Bit/2014-15 12.03.2015

BITUMEN CONTENT GRADATION DETERMINATION OF SEMI DENSE BITUMINOUS CONCRETE MIX

As per IS2386 and IRC:SP:11-1984

CUSTOMER	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
AGENCY	**Technical Manager (West),** KRIDL, Bangalore.
NAME OF THE WORK	Improvements to Main & Cross Road at Kodandaramaswamy temple back side area & Kammagondanahalli in Ward No.12, BBMP, Bangalore.
REFERENCE	EE/DD/WO/46/2014-15 Dated: 25.06.2014
SAMPLE I/D	Roads at Kammagondanahalli Ward No.12.
DATE OF TESTING	12.03.2015

GRADATION AFTER EXTRACTION

Sieve Size in mm	Trail 1				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	26.35	5.55	5.55	94.45	90-100
4.75	262.3	55.22	60.77	39.23	35-51
2.36	52.31	11.01	71.78	28.22	24-39
1.18	38.52	8.11	79.89	20.11	15-30
0.3	34.22	7.20	87.09	12.91	9-19
0.075	34.26	7.21	94.31	5.69	3-8

Sieve Size in mm	Trail 2				Specified Limits as per MORTH specification table 500-15 (Grading-2)
	Weight Retained, gm	% Retained	%Cummulative Retained	% Passing	
13.2	0	0	0	100	100
9.5	36.32	7.66	7.66	92.34	90-100
4.75	258.6	54.56	62.22	37.78	35-51
2.36	36.32	7.66	69.88	30.12	24-39
1.18	34.55	7.29	77.17	22.83	15-30
0.3	38.22	8.06	85.23	14.77	9-19
0.075	46.33	9.77	95.01	4.99	3-8

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Job No.: CTCE/BBMP/W.No.12/KRIDL/SDBC/AGG/2014-15

12.03.2015

Aggregate Gradation Test

IS : 2386 Part I

Customer	**Asst. Executive Engineer,** Shettyhalli Sub Division, BBMP, Bangalore.
Agency	**Technical Manager (West),** KRIDL, Bangalore.
Name of the Work	Improvements to Main & Cross Road at Kodandaramaswamy temple back side area & Kammagondanahalli in Ward No.12, BBMP, Bangalore.
Reference	EE/DD/WO/46/2014-15 Dated: 25.06.2014
Sample I / D	Hot Mix Plant, Bangalore
Type of Mix	Semi Dense Bituminous Concrete (SDBC)
Date of Testing	12.03.2015

Total Weight of Sample: **5150** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	350	6.8	6.80	93.20	90-100	
4.75	2700	52.4	59.22	40.78	35-51	
2.36	650	12.6	71.84	28.16	24-39	
1.18	515	10.0	81.84	18.16	15-30	
0.3	360	7.0	88.83	11.17	9-19	
0.075	310	6.0	94.85	5.15	3-8	

Total Weight of Sample: **5250** gm

SIEVE SIZE, mm	Weight Retained, gm	% Retained	Cummulative % Retained	% Passing	Grade-II As per MORTH	Remarks
13.2	0	0.0	0	100	100	Gradation satisfies Grade-II MORTH specification
9.5	315	6.0	6.00	94.00	90-100	
4.75	2600	49.5	55.52	44.48	35-51	
2.36	790	15.0	70.57	29.43	24-39	
1.18	460	8.8	79.33	20.67	15-30	
0.3	360	6.9	86.19	13.81	9-19	
0.075	410	7.8	94.00	6.00	3-8	

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